Nursing Assessment in Industry

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Abstract: In order to be able to offer nursing service to industry, a community health agency must have some knowledge of the industry and the daily problems faced by both management and worker. The nursing process can serve as a framework for the gathering of necessary information and planning of sound care. The five-step nursing process, which includes assessment, diagnosis, planning, implementation and evaluation, is discussed and an annotated model Assessment Guide for Nursing in Industry is given (Appendix A).

The six areas from which information should be gathered when assessing an industry are the following:
I. The community in which the industry is located;
II. The industry, its historical development, policies, and projections;
III. The plant or physical structure;
IV. The working population;
V. The industrial process of the plant;
VII. The existing health program.

Once the assessment is completed and a diagnosis formulated, services can be offered based on specific, defined needs. (Am. J. Public Health 66:755–760, 1976)

Industrial Accidents

- "A California welder is fatally poisoned by the deadly fumes of cadmium contained in silver solder. Total time of exposure: 6 hours.
- "In Pennsylvania, a man enters a large tank without respiratory protection, is overcome by the fumes of a degreasing compound, and dies on the way to the hospital.
- "In New Mexico recently, workers dismantling a missile site were hospitalized from lead intoxication after using acetylene torches to cut structural steel coated with a red lead paint."

Unfortunately, these industrial accidents are not isolated instances. Man is barraged daily by physical, chemical, and psychological hazards in his work environment. "Every 20 minutes, it is estimated, a new and potentially toxic chemical is introduced into industry."[2] In a country with a workforce of over 80 million people, new and better ways to protect the worker must be found. The time for prevention is now.

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The Occupational Safety and Health Act of 1970 (P.L. 91-596)[3] has changed occupational safety and health from a private problem to a public health problem. Through the law, the federal government took an important step toward the prevention of work-related accidents and disease and the promotion of good health for working men and women in the United States. But, legislation alone can not guarantee good health; this is the role of the professional health worker. The public health nurse can be especially helpful here, for she has long known that the health status of the entire family is intrinsically related to the health of the working members.

Traditionally public health nurses have worked with the total family in a community setting. Often, however, the working member or members of the family are absent during outpatient or home visits and never come into personal contact with the nurse. Could we then bring the nurse to the worker? With preparation, the public health nurse can expand her role to include some responsibility for the health of the worker in the community. Nursing continues to offer its services to new populations in need of care. A small industry that employs from 50 to 500 workers, yet offers no health services at the work site, is a good example of a population in need. This is a common situation in today's industrial society, yet one that is beginning to change. Since the enactment of the Occupational Safety and Health Act (OSHA), industries are becoming more active in seeking health services for employees. Organized community health agencies, especially ones already offering home nursing or visiting services, are being approached for help. These agencies can offer part-time nursing services on a contractual basis to small industries in the community. Even as a part-time worker, the

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nurse has great impact, not only for the worker in preventing work related accidents and disease, but also for the worker's entire family through more comprehensive health education and service.

In order to be able to offer nursing service to industry, a community health agency must have some knowledge of the industry and the daily problems faced by both management and worker. The nursing process can serve as a framework for the gathering of necessary information and planning of sound care. The five step nursing process includes assessment, diagnosis, planning, implementation, and evaluation. When the assessment is completed and diagnosis of nursing needs made, services can be offered for the implementation of planned care based on assessed need.

In this paper, the first step of the nursing process, *assessment*, will be discussed as it applies to industry. Included is an annotated model Assessment Guide (Appendix A) which can be used by a nurse or agency in preparation for making a diagnosis of nursing needs of the industry. The Guide has two parts. The first part (left hand columns) contains an outline of the six major areas covered by the assessment. The second part (right hand columns) contains notes, clarifications, elaborations, or rationale. This part has been included as a further guide particularly for the nurse whose experience has not included work in industry.

The Assessment Guide was designed to be as all inclusive as possible and, ideally, all the six areas listed should be explored when assessing the health care needs of an industrial population. However, assessment is an ongoing process. It is not necessary to complete the entire Assessment Guide before establishing a plan of action.* The nurse can begin by quickly assessing the working population (Section IV) and the existing health program (Section VI). From this she can make some short term plans for offering services related to existing problems. Then, as new information is acquired, short-term plans can be updated and long-term plans can be made to prevent potential hazards from becoming problems.

An Ounce of Prevention

The following general guidelines should be considered before beginning an industrial assessment:

1. Work within the existing structure. Get permission to be in the work area. Obey rules. Be alert for signs that say "Keep Out" or "Hard Hat Area".
2. Assess with the company physician or any other health or first aid worker designated by the company. A great deal can be learned as well as taught during the assessment.
3. Record observations as soon as possible. Make no assumptions. Impressions and opinions are important, but they must be labeled as such.
4. Use some system for data collection[4] (see attached

Assessment Guide) and whenever possible, standard nomenclature.
5. Be aware of how the assessment is being perceived by worker and management. To avoid initial misunderstandings, outline the purpose and objectives clearly.
6. Keep all findings confidential and make this clear to the management before beginning. Industry can be competitive.

Conclusions and Recommendations

Sound nursing diagnosis is based on fact. The assessment phase of the nursing process serves as the vehicle for information gathering. Once the assessment is completed and the diagnosis is formulated, services can be offered to meet the needs. The areas of greatest priority usually include the following:

1. Establishing health policies and procedures;
2. Keeping records and reports;
3. Screening;
4. Caregiving, emergency care if the nurse is present and chronic care for long term situations either in the home or in the plant;
5. Counseling and referral;
6. Health education and safety education.

The time has come for nurses to be innovators of health care. For a long time nursing has been working with less than the total family. The new OSHA requirements for record keeping and for improved health and safety conditions have caused employers to seek help.[5] Nursing has already begun supplying services to industry and involving itself with the health of the worker, but involvement has been slow in developing. Lack of experience and preparation in occupational health nursing has been the cause.

There are essentially no new skills required for nurses to begin working in industry part-time, but new bodies of knowledge and new awareness of the worker must be developed. For nurses in practice, inservice education in toxicology, physical assessment, audiometry, etc., must be offered. Hopefully, schools of public health will soon begin to assume more responsibility for offering this information through workshops and seminars. At the same time, baccalaureate programs in nursing can help to create further awareness for the needs of the worker by including this content in the basic curriculum. Nursing students will then not only be taught the concept of wellness, but also how to keep man well.

The new legislation concerned with the health of the worker, coupled with the need for accountability by health professionals for quality and quantity of practice, are continuing to draw more nurses into industry. It is in this setting that the nurse can help men and women insure their ability to work and enjoy life to the fullest potential.

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*Those items in the Guide to which particular attention might be paid on initial assessment have been underlined.

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APPENDIX A
ASSESSMENT GUIDE FOR NURSING IN INDUSTRY: A MODEL

I. **Community in which industry located**

A. **Description of the Community**
1. size in area and population
2. climate/altitude/rainfall
3. pollution (noise, radiation, etc.)
4. housing
5. transportation
6. schools
7. sanitation
8. protection: fire, police, etc.
9. trends

I. **Just as industry affects the community, so the community affects industry.**

A. **Use 3 or 4 key descriptive words**
1. How far do the employees travel to work and are the workers neighbors?
2. Are there times or seasons that are more hazardous than others?
3. Can the worker's dermatitis or hearing loss be attributed to the community or is it work-related?
4. Is there adequate, safe housing in the area? Must the worker spend too great a percentage of his salary on housing?
5. Is there safe, adequate transportation to work as well as to a hospital or school?
6. Do children have to be bused to school or attend overcrowded classes?
7. Are roaches and rats common to the area?
8. Are the workers and the industry protected?
9. Is the area becoming more urban? residential? run-down? deserted?

B. **Population**
1. age distribution
2. sex distribution
3. ethnic and religious composition
4. socioeconomic characteristics

C. **Health Information**
1. vital statistics
2. disease incidence and prevalence
3. health facilities available
4. community resources

B. **How alike or different is the population of the industry from that of the community?**
1. Are the families of child-rearing age or of retirement age?
2. Are there more men or women?
3. Are there certain customs or languages that are predominant in the community?
4. What is the level of education of the community? What is the mean community income?

C. **Is it an ill or well community?**
1. What is the infant mortality rate, birth rate, average life expectancy? Usually the local health department has this information.
2. What are the leading causes of morbidity and mortality?
3. What physical facilities and professional services are available?
4. Are there day care centers, drug rehabilitation facilities, Alcoholics Anonymous groups, etc.?

II. **The Company**

A. **Historical Development**

II. **The official name and address of the company.**

A. **Get a perspective on how,**

B. Organizational Chart

C. Policies

   1. length of the work week

   2. length of work time

   3. sick leave

   4. safety and fire provisions

D. Support Services (Benefits)

   1. insurance programs

   2. retirement program

   3. educational support

   4. safety committee

   5. recreation committee

E. Relations between Worker and Management

F. Projection for the Future

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why, and by whom the company was founded and compare it with the present situation.

B. What is the formal order of the system and to whom will the nurse be responsible?

C. If there is a policy manual, try to obtain a copy. Are the workers aware of the manual?

   1. How many days a week does the industry operate?

   2. Are there several shifts? breaks? Is there paid vacation?

   3. Is there a clear policy and do the workers know it?

   4. Is management aware of situations or substances in the plant which represent danger? Are there organized fire drills? The *Federal Register* is the source of information for federal standards and serves as a helpful guide.[6]

D. What is the attitude of management concerning worker benefits?

   1. Is there a system for health insurance and life insurance and is it compulsory? Does the company pay all or part? Who fills out the necessary forms?

   2. Are the benefits realistic?

   3. Can the worker further his education? Will the company help him financially?

   4. The programmed Red Cross First Aid Course is excellent. For information consult your local Red Cross. If there is no committee, do certain people routinely handle emergencies?

   5. Do the workers have any communication with or interest in each other outside the work setting?

E. This is difficult information to get, but it is important to know how each perceives the other.

F. If the company is growing, the worker may see

III. The Plant

A. General Physical Setting

   1. the construction

   2. parking facilities and public transportation stops

   3. entrances and exits

   4. physical environment

   5. communication facilities

   6. housekeeping

   7. interior decoration

B. The Work Areas

   1. space

   2. heights: workplace and supply areas

   3. stimulation

   4. safety signs and markings

   5. standing and sitting facilities

   6. safety equipment

C. Non-Work Areas

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himself as having a secure future; if not, he may be worried about his job security. How will plant expansion affect the need for nursing services?

III. Draw a small map to scale, labeling the areas. When an accident occurs, place a pin in the exact location on your map. Different color pinheads can be used for keeping statistics.

A. What is the gross appearance?

   1. What is the size and general condition of buildings and grounds?

   2. How far does the worker have to walk to get inside?

   3. How many people must use them? How accessible are they?

   4. Comment on heating, air-conditioning, lighting, glare, drafts, etc.

   5. Are there bulletin boards, newsletters?

   6. Is the physical setting maintained adequately?

   7. Are the surroundings conducive to work? Are they pleasing?

B. Get permission to examine them. Use the *Federal Register* as a guide.[6]

   1. Are workers isolated or crowded?

   2. Falls and falling objects are dangerous and costly to industry.

   3. Is the worker too bored to pay attention?

   4. Is danger well marked?

   5. Are chairs safe and comfortable? Are there platforms to stand on, especially for wet processes?

   6. Do the workers make use of hard hats, safety glasses, face masks, radiation badges, etc.? Do they know the safety devices the OSHA regulations require?[7]

C. Where are they located? Is there easy access?

1. lockers

2. hand washing facilities

3. rest rooms

4. drinking water

5. recreation and rest facilities

6. telephones

7. ashtrays

IV. **The Working Population**

A. **General Characteristics**

1. total number of employees

2. general appearances

3. age and sex distribution

4. race distribution

5. socioeconomic distribution

6. religious distribution

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1. If the work is dirty, workers should be able to change clothes. Are they bringing toxic substances home?

2. If facilities and supplies are available, do workers know how and when to wash their hands?

3. How accessible are they and what condition are they in?

4. Can a worker leave his job long enough to get a drink of water when he wants to?

5. Can a worker who is not feeling well lie down? Do workers feel free to use the facilities?

6. Can a worker receive or make a call? Does a working mother have to stay home because she can't be reached at work?

7. Are people allowed to smoke in designated areas? Is it safe?

IV. **Include worker and management, but separate data for comparison.**

A. **Be as accurate as possible, but estimate when necessary.**

1. Usually, if an industry has 500 or more employees, full time nursing services are necessary.[8,9]

2. Heights, weights, cleaniness, etc.

3. Certain screening programs are specific for young adults while others are more for the elderly. Some programs are more for women; others are more for men. Is there any difference between day and evening shift? Are the problems of the minority sex unattended?

4. Does one race predominate? How does this compare with the general community?

5. Great differences in worker salaries can sometimes cause problems.

6. Does one religion predominate? Are

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7. ethnic distribution

8. marital status

9. educational backgrounds

10. life styles practiced

B. **Type of Employment Offered**

1. background necessary

2. work demands on physical condition

3. work status

C. **Absenteeism**

1. causes

2. length

D. **Physically Handicapped**

1. number employed

2. extent of handicaps

E. **Personnel on Medication**

F. **Personnel with Chronic Illness**

V. **The Industrial Process**

A. **Equipment Used**

1. general description of placement

2. type of equipment

B. **Nature of the Operation**

1. raw materials used

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religious holidays observed?

7. Is there a language barrier?

8. Widowed, singles, divorced people often have different needs.

9. Can all teaching be done at approximately the same level?

10. Are certain life styles frowned upon?

B. **What percentage of the work force is blue-collar and what percentage is white-collar?**

1. What educational level is required? Skilled vs unskilled?

2. Strength needed; sedentary vs active.

3. Part-time vs full-time; overtime?

C. **Is there a record kept? By whom? Why?**

1. What are the five most common reasons for absence?

2. Absenteeism is costly to the employer. There is some difference between one 10 day absence and 10 one day absences by the same person.

D. **Does the company have a policy about hiring the handicapped?**

1. Where do they work? What do they do?

2. Are they specially trained? Are they in a special program? Do they use prosthetic devices?

E. **Know what medication and where the employee works.**

F. **At what stage of illness is the employee? Where does the employee work? Will he be able to continue at this job?**

V. **What does the company produce and how?**

A. **Portable vs fixed; light vs heavy.**

1. Mark each piece of large equipment on the scale map.

2. Fans, blowers, fast moving, wet or dry.

B. **Get a brief description of each stage of the process so you can compare the needs and abilities of the worker with the needs of the job.**

1. What are they and

2. nature of the final product

3. description of the jobs

4. waste products produced

C. Exposure to Toxic Substances

D. Faculties Required throughout the Industrial Process

VI. The Health Program

A. Existing Policies

1. objectives of the program
2. pre-employment physicals

3. first aid facilities

4. standing orders

how dangerous are they? Are they properly stored? Check the *Federal Register* for guidelines on storage.[6]

2. Can the workers take pride in the final product or do they make parts?

3. Who does what? Where? Label the map.

4. What is the system for waste disposal? Are the pollution control devices in place and functioning?

C. Describe the toxins to which the worker is exposed and the extent of exposure. Include physical and emotional hazards. Remember that chronic effects of industrial exposure are subtle; a person often gets used to having mild symptoms and won't report them. The *Federal Register* contains specifications for exposure to toxins and some states issue state standards.[6, 10, 11]

D. The need for speed, hearing, colorvision, etc., can help determine the types of screening programs necessary.

VI. Outline what is actually in existence as well as what employees perceive to be in existence.

A. Are there informal, unwritten policies?
1. Are they clear?

2. Are they required? Are they paid for by the company? Is the information used to deselect?

3. What is available? What is not available?

4. Is there a company physician who is responsible for first aid or emergency policy? If so, work

5. job descriptions for health personnel

B. Existing Facilities and Resources

1. trained personnel

2. space

3. supplies

4. records and reports

C. Services Rendered in the Past Year
1. care needed

2. screening done

3. referrals made

4. counseling done

5. health education

D. Accidents in the Past Year

E. Reasons Employees Sought Health Care

closely with him in planning nursing services.[12]

5. If there are no guidelines to be followed, write some.[13]

B. Sometimes an industry that denies having a health program has more of a system than they realize.
1. Who responds in an emergency?
2. Where is the sick worker taken? Where is the emergency equipment kept?
3. Make a list and describe the condition of each item.
4. What exists? The Occupational Safety and Health Act requires that employers keep three types of records: a log of occupational injuries and illnesses, a supplemental record of certain illnesses or injuries, and an annual summary (forms 100, 101, and 102 are provided under the Act).[5, 14, 15] Good records provide data for good planning.

C. Describe as specifically as possible.
1. Chronic or acute? why?
2. Where? by whom? why?
3. By whom? to whom? why?
4. Often informal counseling goes unnoticed.
5. What individual or group education was offered by the company?

D. Including those occurring after work hours as some of these accidents may be directly or indirectly work related.

E. List the five major reasons.